HPE Network Node Manager Software i 10.20

Step-by-Step Guide to Incident Management

White Paper

Contents

Incident Management

This whitepaper describes the NNMi event pipeline and Incident configuration. It includes the following Incident configuration options:

- Deduplication
- Rate Correlation
- Incident Suppression
- Enrichment
- Actions

It also includes information about Dampening incidents and explains how to narrow incident customization based on Node Group and Interface Group membership.

This whitepaper uses the following terms:

- Trap - an asynchronous notification from an SNMP agent on a managed node that is sent to the NNMi management server.
- NNMi management event - an incident that is generated by NNMi usually as a result of a status poll. An example is the Node Down incident.

Also see the "Step-by-Step Guide to Managing SNMP Traps in NNMi".

Note
In this example scenario, a network device sends the same example SNMP trap to mean various things. The difference between the traps is the varbinds (variable bindings). This is a common practice for some devices and applications.

Setting up your SNMP trap

In this example scenario, a network device sends the same example SNMP trap to mean various things. The difference between the traps is the varbinds (variable bindings). This is a common practice for some devices and applications.

Note
Your NNMi console appearance might vary from some of the figures in this document.

The trap and its varbinds are defined below:

OID	.1.3.6.1.4.1.33333.0.1
Varbind 1:	.1.3.6.1.4.1.33333.1.1.1 (Integer)
Varbind 2:	.1.3.6.1.4.1.33333.1.2.1 (Octet String)

Table 1. The following table describes the Varbind 1 and Varbind 2 values

Varbind1 Type: Integer	**Varbind1 Type Description: Status**
Varbind1 Value	**Description**
1	Normal Status
2	Warning
3	Critical

Varbind2 Type: String	**Varbind1 Type Description: Module with problem**
Varbind2 Value	**Description**
CPU	CPU is the source of the problem
Temperature	Temperature is the source of the problem

Because this trap does not exist, no MIB defines the trap. Therefore, this example begins by creating the trap definition. However, normally, to begin, load the trap definition using the following command:

1. First, load the MIB using:

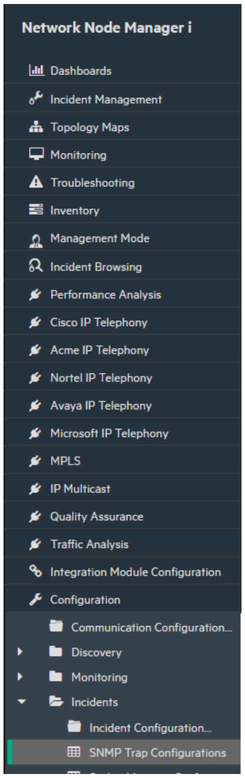
   ```
   nnmloadmib.ovpl -load <mib_file>
   ```

2. Load the trap using:

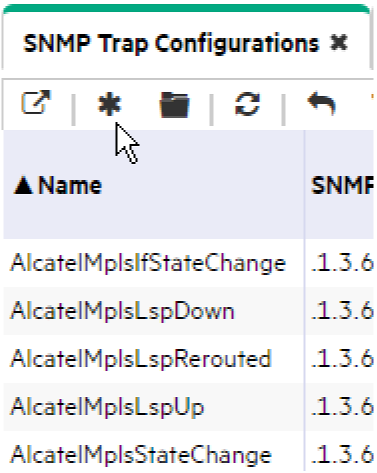
   ```
   nnmincidentcfg.ovpl -loadTraps <mib_module_name>
   ```

To create the trap definition:

1. Navigate to the Configuration workspace, expand Incidents, and click SNMP Trap Configurations.

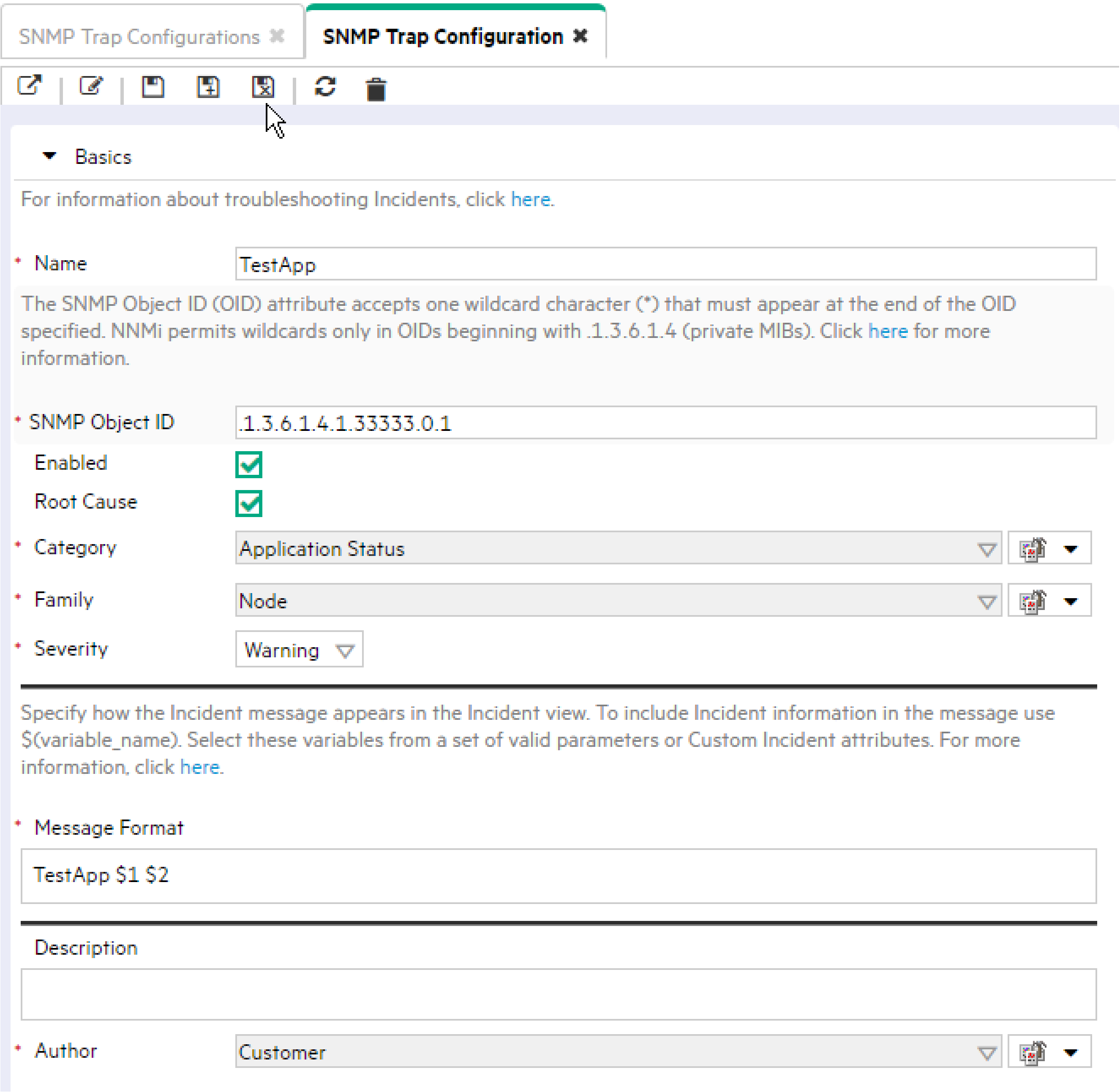


2. Navigate to the SNMP Traps tab and select the ✱ icon.



▲Name	SNMP
AlcatelMplsIfStateChange	.1.3.6
AlcatelMplsLspDown	.1.3.6
AlcatelMplsLspRerouted	.1.3.6
AlcatelMplsLspUp	.1.3.6
AlcatelMplsStateChange	.1.3.6

3. In the Name attribute, enter TestApp.
4. In the SNMP Object ID attribute, enter .1.3.6.1.4.1.33333.0.1.
5. Click Enabled.
6. Click Root Cause so that these traps will display in the Key Incidents view.
7. In the Category attribute, select Application Status.
8. In the Family attribute, select Node.
9. In the Severity attribute, select Warning.
10. In the Message Format attribute, enter “TestApp $1 $2”.
11. In the Author attribute, select Customer.
12. Click Save and Close to save the changes.



For information about troubleshooting Incidents, click here.

* Name: TestApp

The SNMP Object ID (OID) attribute accepts one wildcard character (*) that must appear at the end of the OID specified. NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private MIBs). Click here for more information.

* SNMP Object ID: .1.3.6.1.4.1.33333.0.1

Enabled ☑

Root Cause ☑

* Category: Application Status
* Family: Node
* Severity: Warning

Specify how the Incident message appears in the Incident view. To include Incident information in the message use $(variable_name). Select these variables from a set of valid parameters or Custom Incident attributes. For more information, click here.

* Message Format: TestApp $1 $2

Description:

* Author: Customer

13. Next, use the nnmsnmpnotify.ovpl command to send the example traps:

```
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1 .1.3.6.1.4.1.33333.1.1.1 integer 2
.1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
```

```
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1 .1.3.6.1.4.1.33333.1.1.1 integer 1
.1.3.6.1.4.1.33333.1.2.1 OCTETSTRING Temperature
```

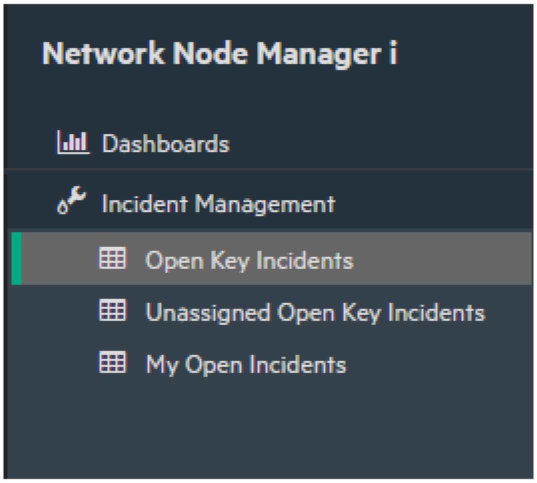
Note

This command must be run from the NNMi server. Each `nnmsnmpnotify.ovpl` is a single line

To confirm that NNMi has received the traps:

1. Navigate to the Incident Browsing workspace.
2. Click Open Key Incidents to confirm that the traps have been received

Note
Use the pull-down menu to change the time period if necessary.

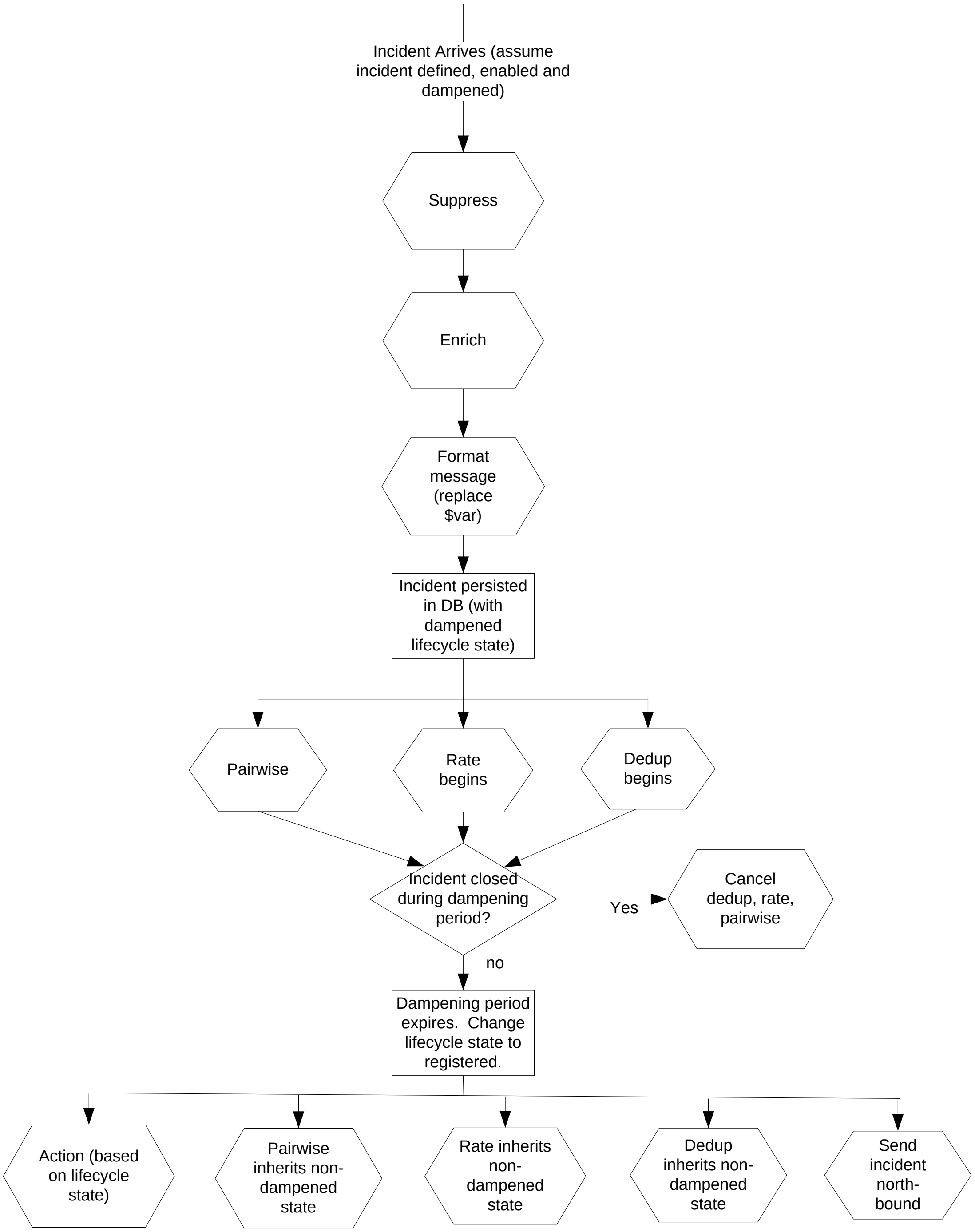


Now you are ready to begin working with these traps.

Dampening and the Incident Pipeline

NNMi provides the Incident Dampening feature to enable you to ignore network “noise” in which interfaces and nodes are down for short periods of time. With Incident Dampening, NNMi behaves as if the short outages never occurred. To identify these incidents, NNMi uses the Dampened Lifecycle State. The Dampened Lifecycle State precedes the Registered Lifecycle State.

The following flowchart provides a summary of where Dampening fits into the NNMi Incident Pipeline.


Incident Arrives (assume incident defined, enabled and dampened)
Suppress
Enrich
Format message (replace $var)
Incident persisted in DB (with dampened lifecycle state)
Pairwise
Rate begins
Dedup begins
Incident closed during dampening period?
Yes
Cancel dedup, rate, pairwise
no
Dampening period expires. Change lifecycle state to registered.
Action (based on lifecycle state)
Pairwise inherits non-dampened state
Rate inherits non-dampened state
Dedup inherits non-dampened state
Send incident north-bound

As shown in the preceding flowchart, when an incident arrives, NNMi checks whether the incident can be suppressed and immediately discarded. If an incident is not suppressed, NNMi determines whether an Enrichment Configuration is enabled for the incident. (Enrichment Configuration is used to customize a subset of incident configuration attributes, such as Message Format or Priority.)

Next, NNMi replaces any parameter strings (for example $sourceNodeName) specified in the Message Format.

If Dampening is enabled for the incident, NNMi sets the Lifecycle State to Dampened. If Dampening is not enabled for the incident, NNMi sets the Lifecycle State to Registered.

After the Lifecycle State is set, Rate and Deduplication correlations, as well as Pairwise matching takes place.

If NNMi cancels the incident and sets the Lifecycle State to Closed during this Dampening period, NNMi discards the incident and discontinues any Rate or Deduplication correlation and Pairwise matching. If the Dampening period expires, NNMi sets the Lifecycle State to Registered and continues any Rate or Deduplication correlation and Pairwise matching.

Customizing Incident Configurations Using Interface or Node Groups

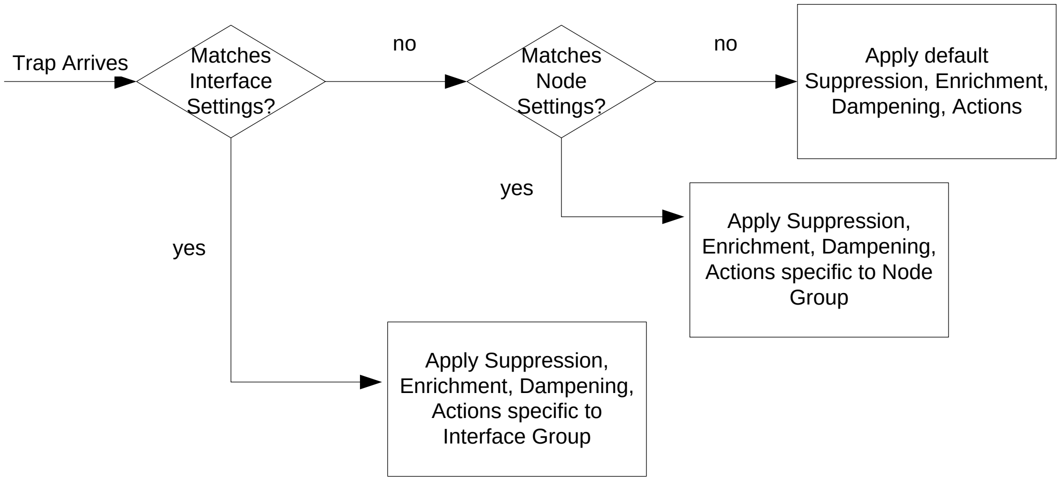
Incidents can be customized based on Interface Groups or Node Groups. This feature is reflected in the incident configuration form. When a trap arrives into the Incident Pipeline (after it has cleared any filtering), NNMi compares the SNMP trap to the Interface Settings to see if the source of the trap is a member of this Interface Settings group. If NNMi finds a match on the source interface (source object), NNMi applies the Suppression, Enrichment, Dampening, and Actions specific to that Interface Group.

Note

If one of these tabs is disabled (for example, Enrichment), NNMi does not use the default Enrichment.

If the source interface does not match any Interface Settings, NNMi compares the source node to the Node Settings group. If NNMi finds a match on the source node, NNMi applies the Suppression, Enrichment, Dampening, and Actions specific to that Node Group.

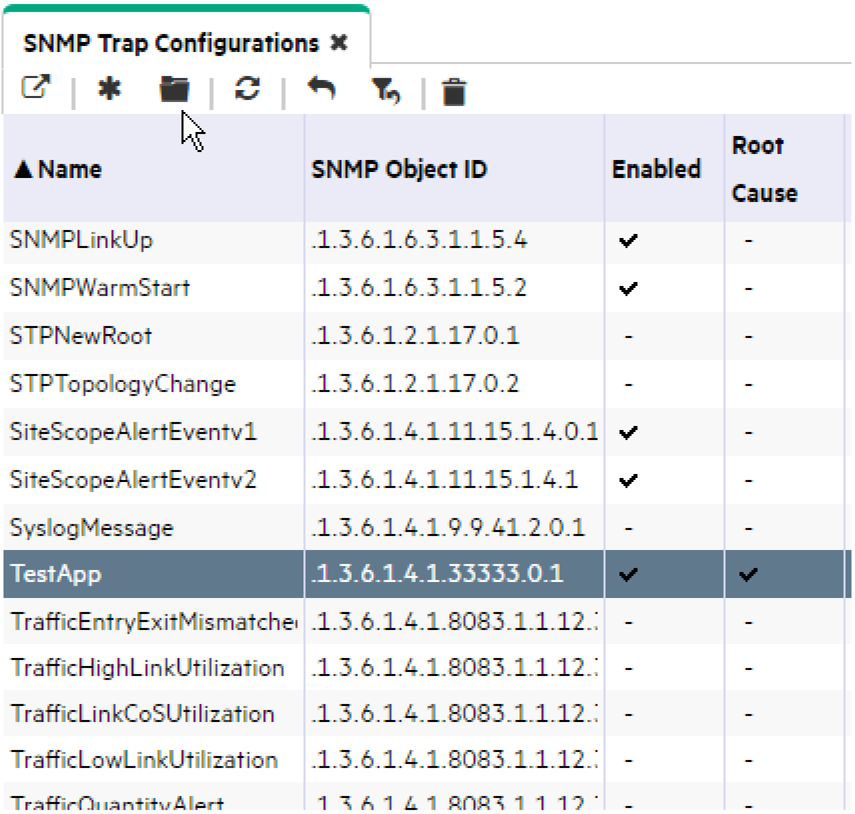
If the source node does not match any Node Settings, then the default Suppression, Enrichment, Dampening and Actions are applied.


Trap Arrives
Matches Interface Settings?
no
Matches Node Settings?
no
Apply default Suppression, Enrichment, Dampening, Actions
yes
Apply Suppression, Enrichment, Dampening, Actions specific to Node Group
yes
Apply Suppression, Enrichment, Dampening, Actions specific to Interface Group

NNMi applies Deduplication and Rate Correlation independent of Interface Settings and Node Settings.

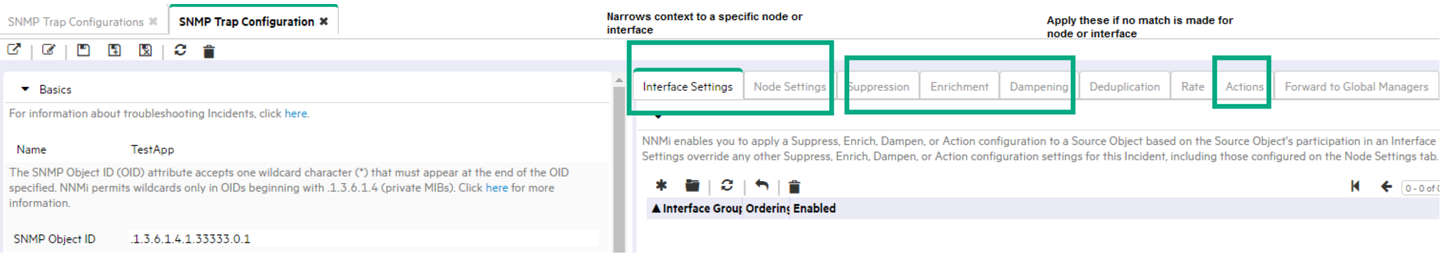
To view the Incident Configuration options for Interface and Node Settings:

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the 📁 Open button



▲Name	SNMP Object ID	Enabled	Root Cause
SNMPLinkUp	.1.3.6.1.6.3.1.1.5.4	✓	-
SNMPWarmStart	.1.3.6.1.6.3.1.1.5.2	✓	-
STPNewRoot	.1.3.6.1.2.1.17.0.1	-	-
STPTopologyChange	.1.3.6.1.2.1.17.0.2	-	-
SiteScopeAlertEventv1	.1.3.6.1.4.1.11.15.1.4.0.1	✓	-
SiteScopeAlertEventv2	.1.3.6.1.4.1.11.15.1.4.1	✓	-
SyslogMessage	.1.3.6.1.4.1.9.9.41.2.0.1	-	-
TestApp	.1.3.6.1.4.1.33333.0.1	✓	✓
TrafficEntryExitMismatche	.1.3.6.1.4.1.8083.1.1.12.:	-	-
TrafficHighLinkUtilization	.1.3.6.1.4.1.8083.1.1.12.:	-	-
TrafficLinkCoSUtilization	.1.3.6.1.4.1.8083.1.1.12.:	-	-
TrafficLowLinkUtilization	.1.3.6.1.4.1.8083.1.1.12.:	-	-
TrafficQuantityAlert	.1.3.6.1.4.1.8083.1.1.12.:	-	-

The graphic below indicates how the various tabs apply to this concept



SNMP Trap Configurations ✖
SNMP Trap Configuration ✖
Narrows context to a specific node or interface
Apply these if no match is made for node or interface
Interface Settings
Node Settings
Suppression
Enrichment
Dampening
Deduplication
Rate
Actions
Forward to Global Managers
Basics
0 - 0 of (

For information about troubleshooting Incidents, click here.

Name TestApp

The SNMP Object ID (OID) attribute accepts one wildcard character (*) that must appear at the end of the OID specified. NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private MIBs). Click here for more information.

SNMP Object ID .1.3.6.1.4.1.33333.0.1

NNMi enables you to apply a Suppress, Enrich, Dampen, or Action configuration to a Source Object based on the Source Object's participation in an Interface Settings override any other Suppress, Enrich, Dampen, or Action configuration settings for this Incident, including those configured on the Node Settings tab.

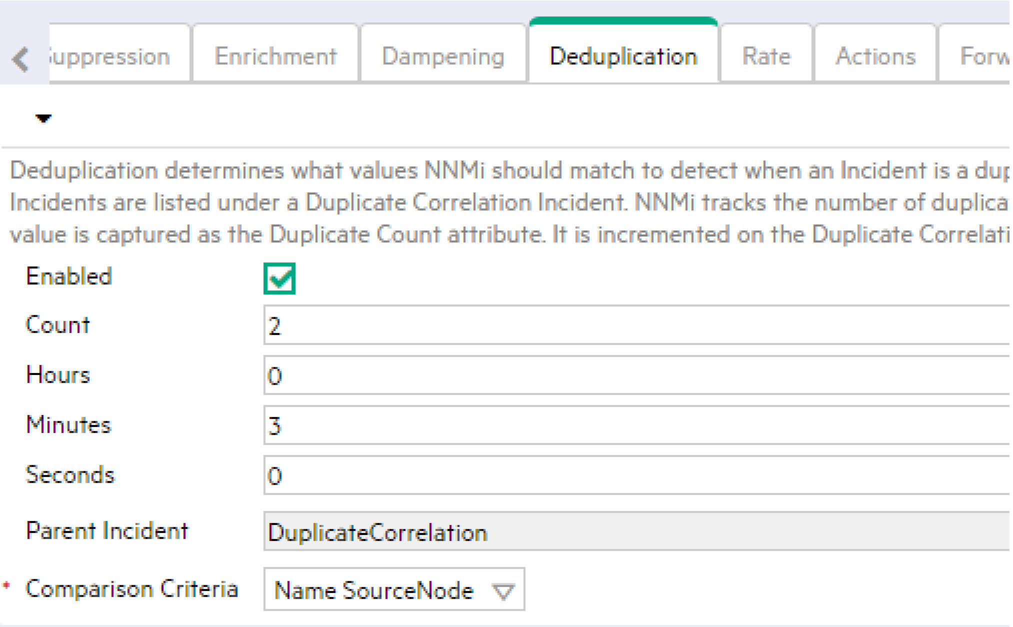
▲Interface Grou	Ordering	Enabled

Deduplication

NNMi's Deduplication feature enables you to correlate duplicate incidents under a new incident. It also deletes duplicate incidents once a specified number of duplicate incidents are generated.

This example configures Deduplication for the TestApp SNMP trap configuration.

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the Open 📁 button.
4. Click to check Enabled.
5. Navigate to the Deduplication tab.
6. In the Count attribute, enter the number of TestApp traps that NNMi should retain in the database for a particular Deduplication time period. The maximum number is 10. For this example, enter 2.
7. In the Hours, Minutes, and Seconds attributes, specify the time that must elapse before a new duplicate incident is generated for this incident configuration. For this example, in the Minutes attribute, enter 3
8. Next, in the Parent Incident drop-down list, select the incident that you want NNMi to generate to indicate that Deduplication has occurred. For this example, select DuplicateCorrelation.
9. Last, specify the Comparison Criteria. The Comparison Criteria specifies what attributes NNMi should use to decide what constitutes a duplicate. This example uses Name and SourceNode. This means that when two TestApp SNMP traps arrive, NNMi considers them to be duplicate if the SNMP traps have the same name (TestApp) and the same SourceNode (came from the same device in the network).



Deduplication determines what values NNMi should match to detect when an Incident is a dup
Incidents are listed under a Duplicate Correlation Incident. NNMi tracks the number of duplica
value is captured as the Duplicate Count attribute. It is incremented on the Duplicate Correlati

Enabled ☑
Count 2
Hours 0
Minutes 3
Seconds 0
Parent Incident DuplicateCorrelation
* Comparison Criteria Name SourceNode

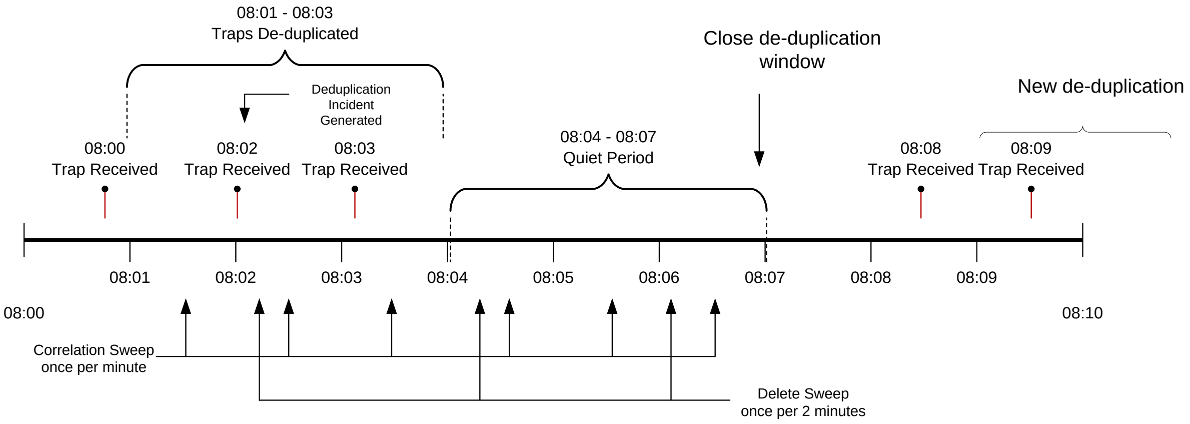
The following diagram depicts the following scenario:

The first TestApp SNMP trap arrives at 8:00. Another trap with the same name and source node arrives at 8:02. NNMi generates a new DuplicateCorrelation incident. At 8:03 another trap arrives. In addition, every minute NNMi sweeps the incidents to determine whether to correlate duplicate incidents. At approximately 8:02:30, NNMi correlates the first two SNMP traps under the DuplicationCorrelation incident and marks them as Correlated Children. At 8:03:30, NNMi correlates the third SNMP trap as a child to the DuplicationCorrelation incident. At approximately 8:04:15, NNMi checks whether more than two TestApp SNMP traps are correlated under a single DuplicationCorrelation. NNMi deletes one of the TestApp SNMP traps because the total number is three.

Note

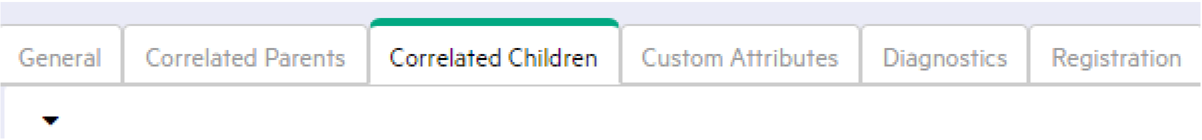
Although NNMi deletes the third SNMP trap from the NNMi database, the total count of 3 is retained in the DuplicateCorrelation incident as the Duplicate Count.

After SNMP traps stop arriving for three minutes (the time window for this Deduplication), NNMi closes the Deduplication time window. At 8:08 a new TestApp trap arrives. At 8:09 another TestApp SNMP trap arrives from the same node. This begins the cycle again. NNMi generates a new DeduplicationCorrelation incident and continues to evaluate each incident as previously described.



These incidents appear in the Open Key Incidents view.

When NNMi sweeps the incidents to determine whether to correlate duplicate incidents, it correlates the three traps under the DuplicateCorrelation incident:



Next, NNMi checks whether more than two TestApp SNMP traps are correlated under a single DuplicationCorrelation and deletes one of the TestApp SNMP traps so that at most two traps are stored in the NNMi database

Finally, after no new duplicate incidents are generated within a period of three minutes, NNMi closes the Deduplication and generates a new Deduplication incident when a new TestApp SNMP trap arrives.

Tip: The longer the time period, the more Deduplication NNMi can track.

Note

Please note that the “Correlation Nature” of a Duplicate Correlation incident is decided based on the correlation nature of the underlying child incidents. For example, if an ‘Origin’ is “SNMP Trap” or “Syslog” for a particular incident (trap or syslog) and if this incident is configured as “Root Cause” in the Incident Configuration then “Duplicate Correlation” incident’s Correlation Nature will be set to “Root Cause” else it will be set to “Dedup Stream Correlation”.
Once correlated, underlying correlated children events’ Correlation Nature is marked as “Symptoms” if it was “Root Cause” before correlation.

Rate

Rate configuration enables you to track incident patterns based on the number of incident reoccurrences within a specified time period. After the count within the specified time period is reached, NNMi emits a Rate Correlation incident and continues to update the Correlation Notes with the number of occurrences within that rate. NNMi correlates the incidents under the Rate Correlation incident while they are within the specified time period. Unlike Deduplication, Rate Correlation never deletes incidents from the database.

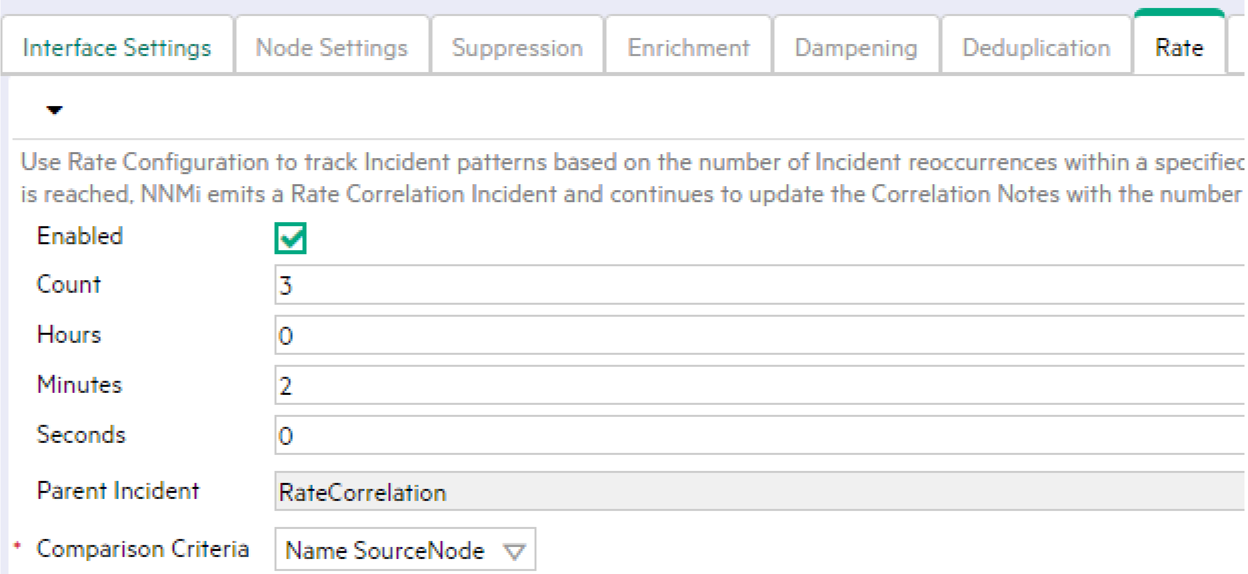
This example configures the Rate so that NNMi generates a Rate incident when three or more TestApp SNMP traps occur within a two-minute time period.

First, disable the Deduplication Incident Configuration

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the Open button.
4. Navigate to the Deduplication tab.
5. Click to clear Enabled

Next, specify the Rate configuration for the TestApp SNMP trap incident.

1. Navigate to the Rate tab.
2. Click to check Enabled.
3. In the Count attribute, enter 3.
4. In the Minutes attribute, enter 2.
5. In the Parent Incident drop-down list, select RateCorrelation.
6. In the Comparison Criteria drop-down list, select Name SourceNode.
7. Click Save and Close to save the configuration



Use Rate Configuration to track Incident patterns based on the number of Incident reoccurrences within a specifiec
is reached, NNMi emits a Rate Correlation Incident and continues to update the Correlation Notes with the number

Enabled ☑

Count 3

Hours 0

Minutes 2

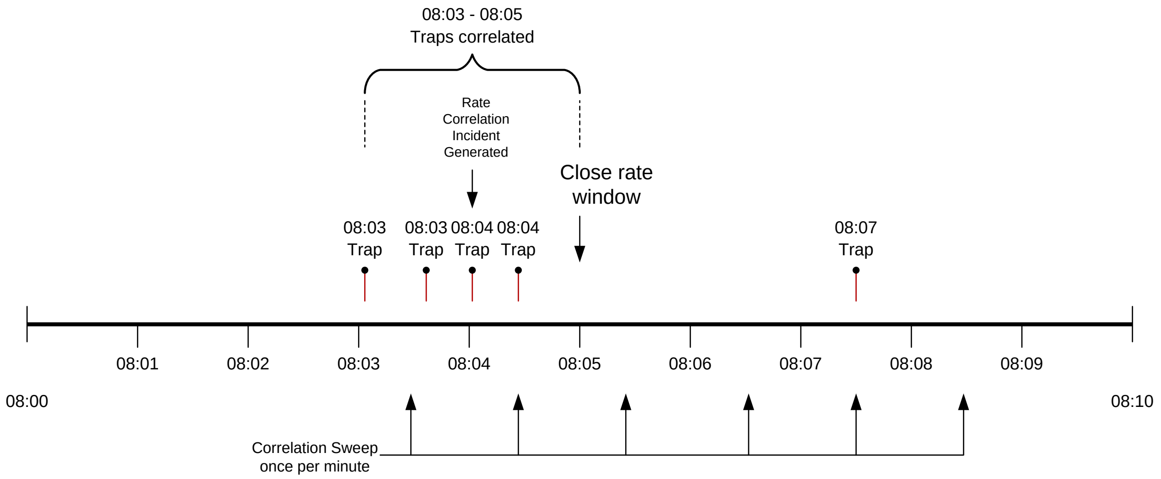
Seconds 0

Parent Incident RateCorrelation

* Comparison Criteria Name SourceNode

The following diagram depicts the following scenario:

The same network device generates four TestApp SNMP traps, each about 20 seconds from the previous one. Because these traps fit within the two-minute time window, when three TestApp SNMP traps occur within a two-minute time period, NNMi generates a new RateCorrelation incident. During the two-minute period, NNMi correlates all TestApp SNMP traps from this same source. After two minutes, NNMi closes the Rate time period. When another TestApp SNMP trap arrives outside of this time period, NNMi does not correlate the incident as part of this Rate correlation

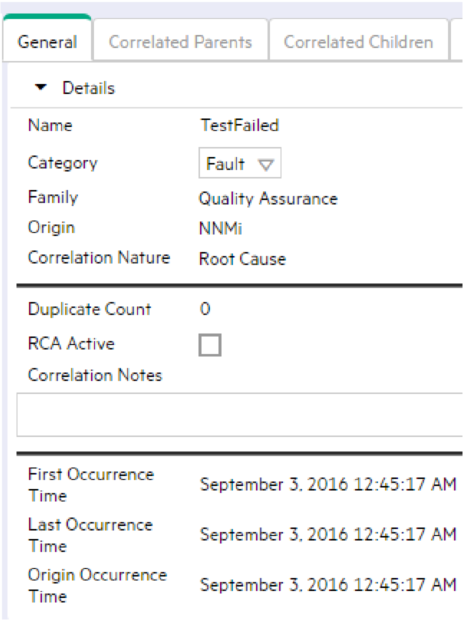


Similar to Deduplication, NNMi only checks for Rate correlations once per minute. Eventually the incident views show all the TestApp SNMP traps within the time period specified and they are correlated under the RateCorrelation incident.

As shown in the following example, because they are not Root Cause incidents, these correlated incidents do not appear in the Open Key Incidents view.

To view the Correlated Children, open the Rate Correlation incident and navigate to the Correlated Children tab.

Navigate to the General tab to see information about the rate correlation in the Correlation Notes. The Correlation Notes are updated throughout the Rate time period that is specified.



Name	TestFailed
Category	Fault
Family	Quality Assurance
Origin	NNMi
Correlation Nature	Root Cause
Duplicate Count	0
RCA Active	□
Correlation Notes	
First Occurrence Time	September 3, 2016 12:45:17 AM
Last Occurrence Time	September 3, 2016 12:45:17 AM
Origin Occurrence Time	September 3, 2016 12:45:17 AM

Note

The “Correlation Nature” of a Rate Correlation incident is decided based on the correlation nature of the underlying child incidents. For example, if an ‘Origin’ is “SNMP Trap” or “Syslog” for a particular incident (trap or syslog) and if this incident is configured as “Root Cause” in the Incident Configuration then “Rate Correlation” incident’s Correlation Nature will be set to “Root Cause” else it will be set to “Rate Stream Correlation”.

Once correlated, underlying correlated children events’ Correlation Nature is marked as “Symptoms” if it was “Root Cause” before correlation.

Enrichment

This example uses Group Settings with Enrichment. The Node Groups used for the Node Group Settings are named Core Routers and Important Servers Node.

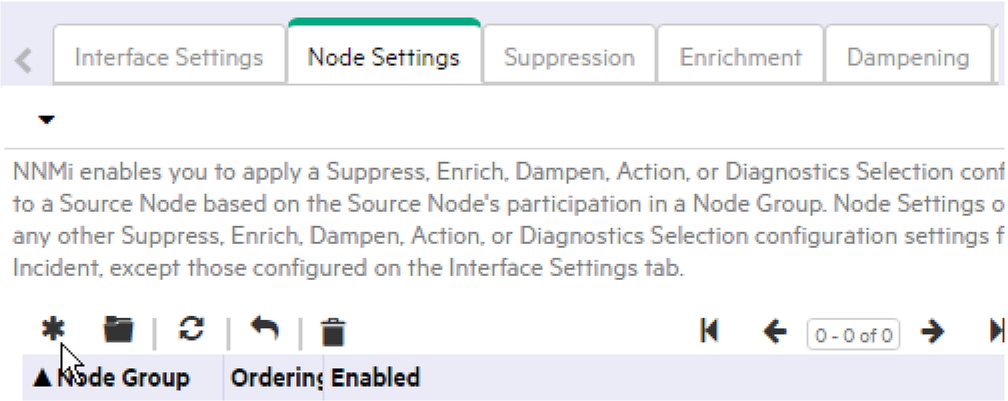
The Enrichment feature enables you to modify an incident when it is processed by NNMi. The types of items that you can modify for a selected incident configuration include:

- Category
- Family
- Severity
- Priority
- Correlation Nature
- Message
- Assigned To
- Custom Attributes

In this example, when the TestApp trap arrives from a router in the Core Routers Node Group, the Incident is enriched so that the Priority is Top. The Message Format is also customized and the incident is assigned to the user (TJ) who is in charge of the Core Routers. When the TestApp trap arrives from a server in the Important Servers Node Group, the incident is

To edit the Enrichment configuration for the TestApp SNMP trap incident:

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the **Open** button.
4. Navigate to the Node Settings tab.
5. Click the **New** icon.

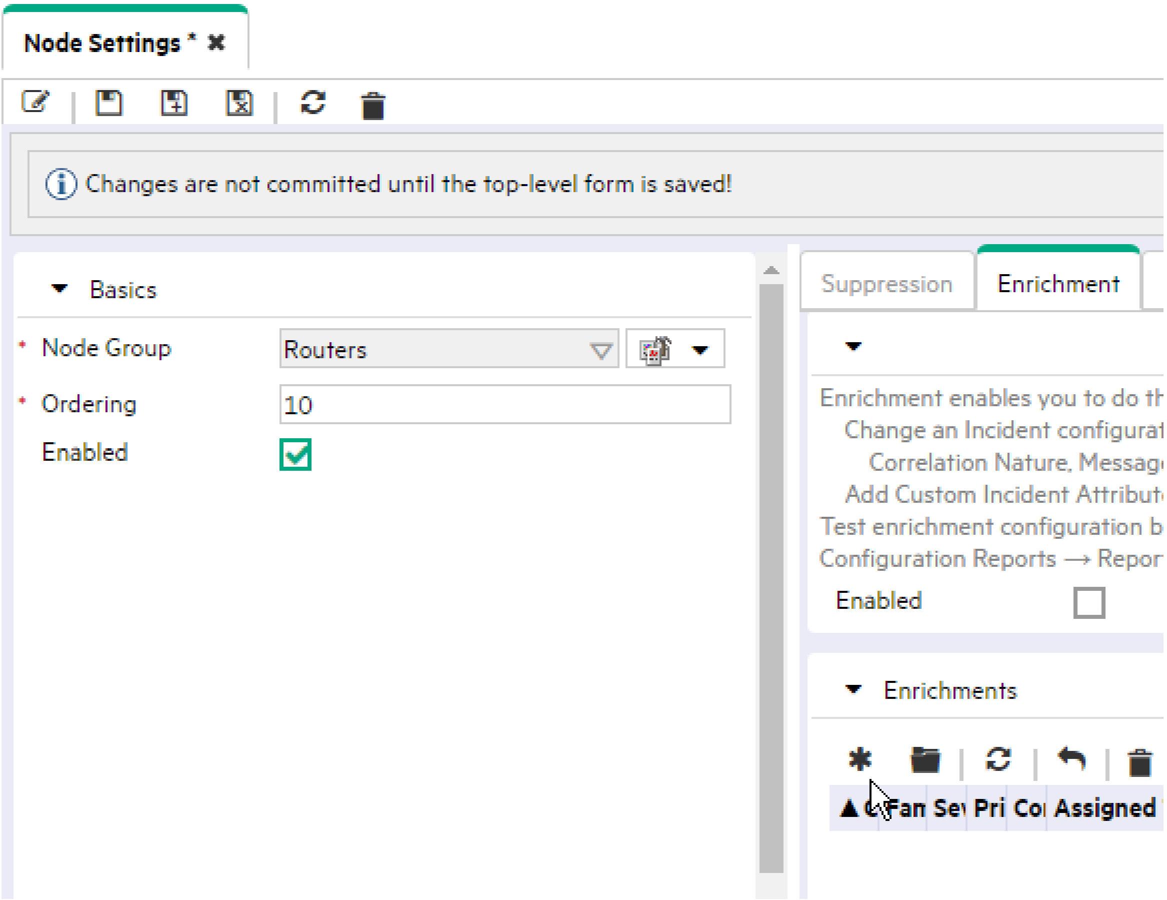


NNMi enables you to apply a Suppress, Enrich, Dampen, Action, or Diagnostics Selection conf to a Source Node based on the Source Node's participation in a Node Group. Node Settings o any other Suppress, Enrich, Dampen, Action, or Diagnostics Selection configuration settings f Incident, except those configured on the Interface Settings tab.

6. In the **Node Group** drop-down list, select the **Core Routers** Node Group.
7. In the **Ordering** attribute, enter 10.

Note
The Ordering attribute determines which Node Settings are applied to a node that is a member of more than one Node Group.

8. Click to check **Enabled**.
9. Navigate to the **Enrichment** tab.
10. Click the ✱ **New** icon.



Changes are not committed until the top-level form is saved!

* Node Group: Routers
* Ordering: 10
Enabled ☑

Enrichment enables you to do th
Change an Incident configurat
Correlation Nature, Messag
Add Custom Incident Attribut
Test enrichment configuration b
Configuration Reports → Repor
Enabled □

11. In the Priority drop-down list, select Top.
12. In the Message Format attribute, enter TestApp on Core Routers $1 $2.
13. In the Assigned To attribute, select Quick Find to select a user from the list. In this example, TJ is a valid user.
14. Click Save and Close to return to the SNMP Trap Configuration Form.
15. Click Save and Close to save your changes

Next, configure Node Settings for the Important Servers Node Group.

1. Navigate to the **Configuration** Workspace.
2. Open **Incidents** and select **SNMP Trap Configurations**.
3. Locate and select the TestApp trap, and then click the 📁 **Open** button.
4. Navigate to the **Node Settings** tab.
5. Click the ✱ **New** icon
6. In the Node Group drop-down list, select the Important Servers Node Group.
7. In the Ordering attribute, enter 20.
8. Click to check Enabled.
9. Navigate to the Enrichment tab.
10. Click the ✱ **New** icon

Next, set the priority to High and change the Message Format.

11. In the Priority attribute drop-down list, select High.
12. In the Message Format attribute, enter TestApp on Important Server $1 $2.
13. Click Save and Close to return to the SNMP Trap Configuration form.
14. Click Save and Close to save your changes.

Note

When you specify Interface Settings or Node Settings, all of the Incident Configuration tabs apply for that Interface or Node Group. For example, if the Suppression configuration is not enabled, NNMi does not use the global setting for Suppression. Instead, Suppression does not occur for that incident.

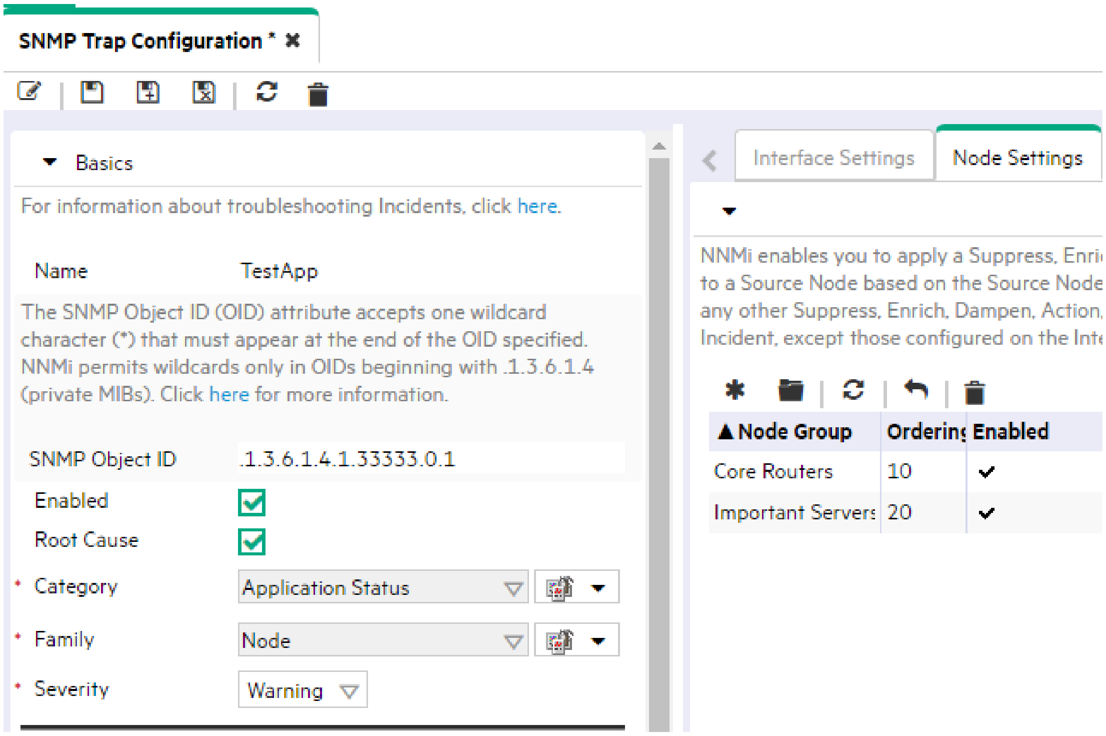
Next, send a trap from each node to see the results.

Suppression

Suppression enables you to discard traps based on specified filter values. For example, you can discard the TestApp SNMP trap incidents when the varbind value that stores Status is set to Normal or Warning for traps received from the Core Routers Node Group. This requires configuring Node Settings and Suppression.

Using the Payload Filter configuration feature, this example suppresses the trap if Varbind1=1 (Normal) or Varbind1=2 (Warning).

Tip: Use the absolute OID (Object Identifier) to specify the Varbind rather than position. For example, for Varbind1 you would specify .1.3.6.1.4.1.33333.1.1.1.



SNMP Trap Configuration * ✖

Basics

For information about troubleshooting Incidents, click here.

Name	TestApp

The SNMP Object ID (OID) attribute accepts one wildcard character (*) that must appear at the end of the OID specified. NNMi permits wildcards only in OIDs beginning with .1.3.6.1.4 (private MIBs). Click here for more information.

SNMP Object ID	.1.3.6.1.4.1.33333.0.1
Enabled	☑
Root Cause	☑
* Category	Application Status
* Family	Node
* Severity	Warning

Interface Settings | Node Settings

NNMi enables you to apply a Suppress, Enri
to a Source Node based on the Source Node
any other Suppress, Enrich, Dampen, Action,
Incident, except those configured on the Inte

▲Node Group	Ordering	Enabled
Core Routers	10	✓
Important Servers	20	✓

To edit the Suppression configuration for the TestApp SNMP trap incident:

1. Navigate to the Configuration Workspace.
2. Open Incidents and select SNMP Trap Configurations.
3. Locate and select the TestApp trap, and then click the Open   button.
4. Navigate to the Suppression tab.
5. Click to check Enabled.
6. In the Payload Filter, do the following:

Note
You must use a top level OR operator in an expression that is two levels deep as shown in this example.

   a. Make sure Append appears as the selection in the drop-down list.
   b. Click OR.
   c. Click AND.

d. In the Attribute drop-down list, select ciaName.

e. In the Operator attribute, select =.

f. In the Value attribute, enter .1.3.6.1.4.1.33333.1.1.1

g. Click Append.

h. In the Attribute drop-down list, select ciaValue.

i. In the Operator attribute, select =.

j. In the Value attribute, enter 1.

k. Click Append.

l. Click AND.

m. In the Attribute drop-down list, select ciaName.

n. In the Operator attribute, select =.

o. In the Value attribute, enter .1.3.6.1.4.1.33333.1.1.1

p. Click Append.

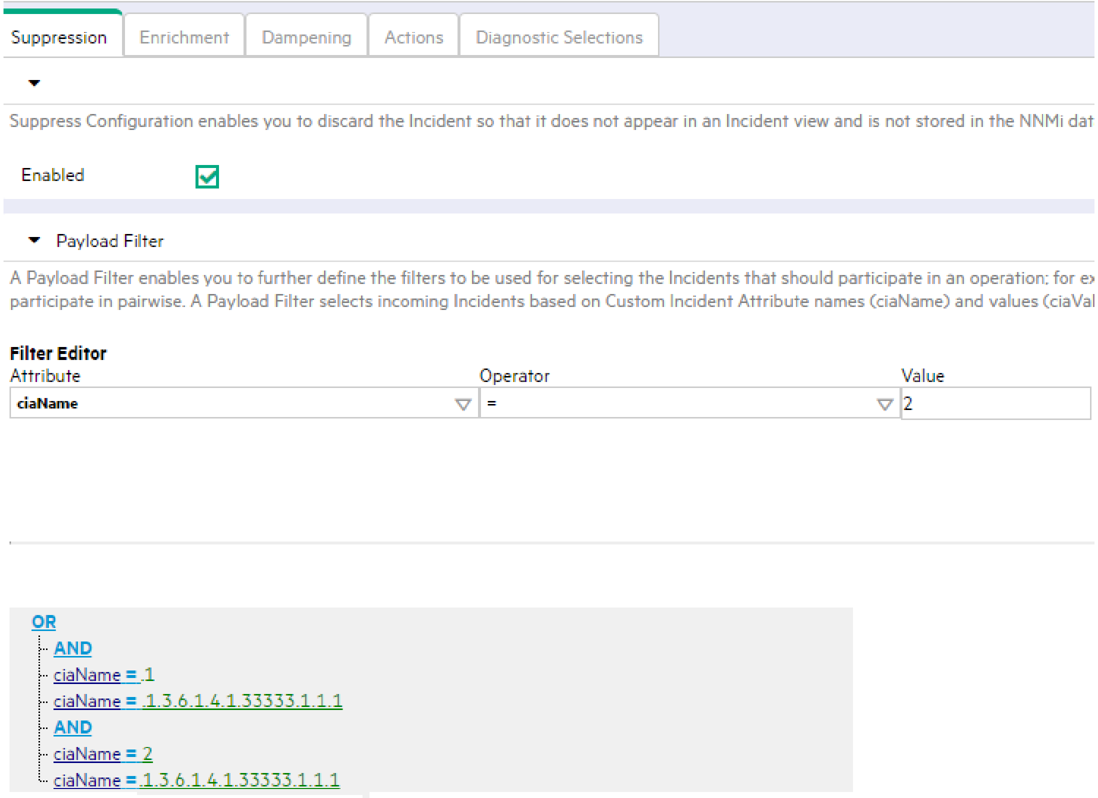
q. In the Attribute drop-down list, select ciaValue.

r. In the Operator attribute, select =.

s. In the Value attribute, enter 2.

t. Click Append

7. Click **Save and Close** to return to the SNMP Trap Configuration form.
8. Click **Save and Close** to save your changes.



Suppress Configuration enables you to discard the Incident so that it does not appear in an Incident view and is not stored in the NNMi dat

Enabled ☑

Payload Filter

A Payload Filter enables you to further define the filters to be used for selecting the Incidents that should participate in an operation; for ex participate in pairwise. A Payload Filter selects incoming Incidents based on Custom Incident Attribute names (ciaName) and values (ciaVal

Filter Editor

Attribute	Operator	Value
ciaName	=	2

OR
- AND
- ciaName = .1
- ciaName = .1.3.6.1.4.1.33333.1.1.1
- AND
- ciaName = 2
- ciaName = .1.3.6.1.4.1.33333.1.1.1

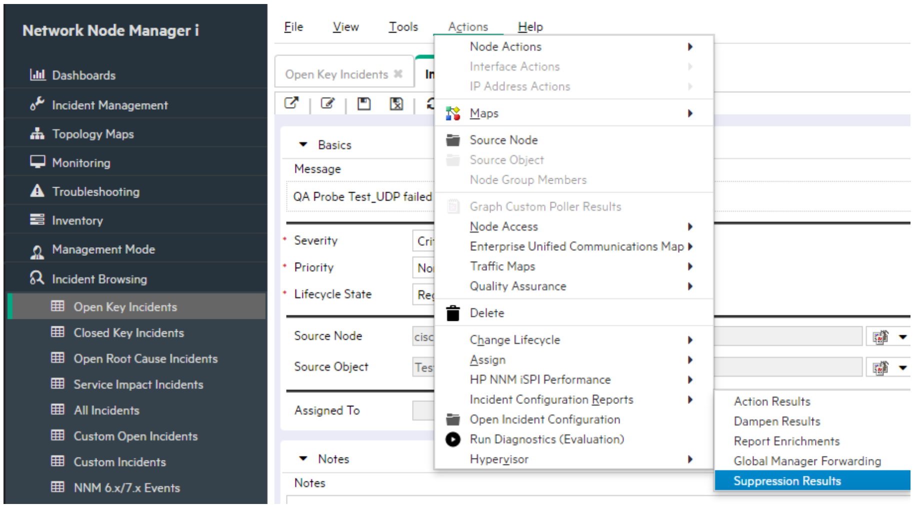
To determine whether an SNMP trap incident is being suppressed, examine one of the SNMP traps in the NNMi database that has already been sent and not suppressed:

1. From an incident view, select the incident of interest and then click the Open button.
2. Select Actions->Incident Configuration Reports->Suppression Results.

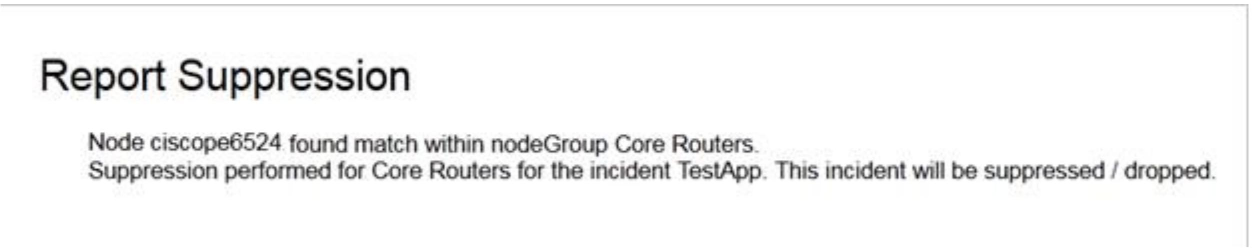
The Suppression Results report displays the results of processing the incident using the Suppression configuration specified for that incident as if the incident was generated.

Note

The Suppression Results report does not actually execute the rules, but instead reports on how the Suppression configuration would be executed. This report is useful to determine whether the Suppression configuration matches any incidents. You can use the same approach for Actions, Dampen, and Enrichment configurations as well.



The following example verifies that a match is made and this trap would be suppressed if received.



Report Suppression

Node ciscope6524 found match within nodeGroup Core Routers.
Suppression performed for Core Routers for the incident TestApp. This incident will be suppressed / dropped.

To fully test the Suppression configuration, send the trap three times, each with a different Varbind value (1, 2, and 3):

```
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1 .1.3.6.1.4.1.33333.1.1.1 integer 1
.1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1 .1.3.6.1.4.1.33333.1.1.1 integer 2
.1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
# nnmsnmpnotify.ovpl -a 10.210.109.1 localhost .1.3.6.1.4.1.33333.0.1 .1.3.6.1.4.1.33333.1.1.1 integer 3
.1.3.6.1.4.1.33333.1.2.1 OCTETSTRING CPU
```

Notice that only the TestApp SNMP trap with Varind1=3 appears in the Open Key Incidents view. NNMi suppresses the other two TestApp SNMP trap incidents.

More about Dampening

The Dampening feature is useful for incidents that NNMi closes automatically when the condition is cleared rather than the simple traps included in the previous examples. For example, NNMi closes the InterfaceDown incident when the status of the interface goes to Normal. If this were to occur during the Dampening period, NNMi does not display the incident in any Incident Management or Incident Browsing views.

By default, NNMi dampens the Management Events it provides for a period of 1 minute. Dampening can be configured to a maximum of one hour to allow two polling cycles to occur before NNMi sets the Lifecycle State to Registered.

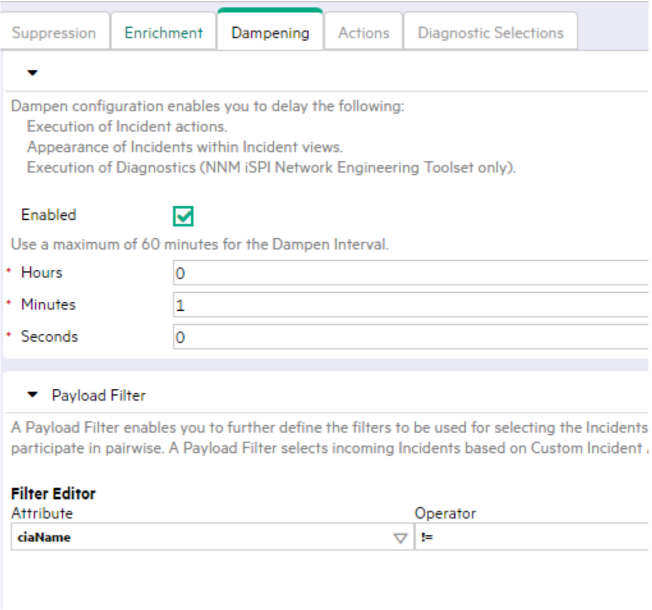
To disable the Dampening for an incident configuration, click to clear Enabled on the incident configuration form.

You can also use the nnmsetdampenedinterval.ovpl command line tool to set the Dampening period and enable Dampening for all incidents.

To disable Dampening for all incident configurations use nnmsetdampenedinterval.ovpl as shown in the following example:

```
nnmsetdampenedinterval.ovpl -hours 0 -minutes 0 -seconds 0
```

An example of the dampening for the InterfaceDown incident is shown below:



Dampen configuration enables you to delay the following:
Execution of Incident actions.
Appearance of Incidents within Incident views.
Execution of Diagnostics (NNM iSPI Network Engineering Toolset only).

Enabled ☑

Use a maximum of 60 minutes for the Dampen Interval.

* Hours 0
* Minutes 1
* Seconds 0

Payload Filter

A Payload Filter enables you to further define the filters to be used for selecting the Incidents participate in pairwise. A Payload Filter selects incoming Incidents based on Custom Incident

Filter Editor

Attribute	Operator
ciaName	!=

Lifecycle State and Actions

NNMi has four common Lifecycle States: Registered, In Progress, Completed, and Closed. It is important to understand Lifecycle State changes because these state changes are the triggers for actions in NNMi.

It is also important to understand that NNMi changes the Lifecycle State to Closed based on the "Down" incident. For example, when an interface goes down, an Interface Down incident is generated and, if the incident is not Dampened, NNMi sets the Lifecycle State to Registered. When the interface comes back up again, NNMi changes the Lifecycle State to Closed, but does not generate an additional Interface Up incident.

This example uses two command line scripts that can be run as actions. One script (ServerScript.ksh) is to be run for TestApp traps that arrive from the Important Servers group. The other script (RouterScript.ksh) is to be run on traps that arrive from the Core Routers group. Each script is passed Source Node Name ($snn) as well as the Varbind1 and Varbind2 values.

The two scripts are as follows:

- ServerScript.ksh:

```
#!/bin/ksh
echo $1 $2 $3 >> /tmp/serverscript.txt
```

- RouterScript.ksh:

```
#!/bin/ksh
echo $1 $2 $3 >> /tmp/routerscript.txt
```

1. Place the scripts into the following directory and make sure they are executable:

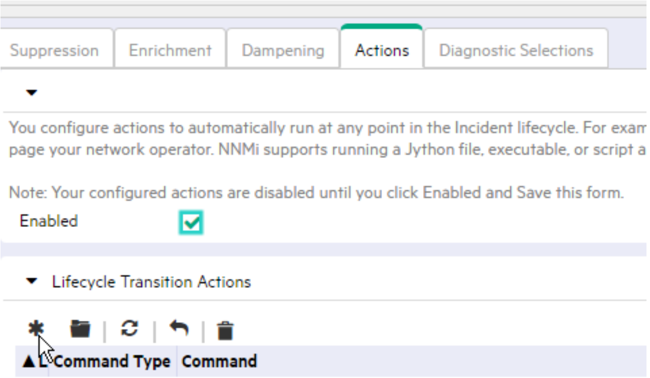
   Windows:

   ```
   %NnmDataDir%¥shared¥nnm¥actions
   ```

   UNIX:

   ```
   /var/opt/OV/shared/nnm/actions
   ```

2. Navigate to the **Configuration** Workspace
3. Open **Incidents** and select **SNMP Trap Configurations**.
4. Locate and select the TestApp trap, and then click the 📁 Open button.
5. Navigate to the **Node Settings** tab.
6. Select Core Routers and then click the 📁 Open button.
7. In the **Node Group** drop-down list, select the **Core Routers** Node Group.
8. In the **Ordering** attribute, enter **10**.
9. Click to check **Enabled**.
10. Navigate to the **Actions** tab.
11. Click to check **Enabled**.
12. Click the ✱ New icon.



Suppression | Enrichment | Dampening | Actions | Diagnostic Selections

You configure actions to automatically run at any point in the Incident lifecycle. For exam
page your network operator. NNMi supports running a Jython file, executable, or script a

Note: Your configured actions are disabled until you click Enabled and Save this form.

Enabled ☑

Lifecycle Transition Actions

Command Type | Command

Next, specify the action to be run and the arguments to pass it.

You can specify Varbinds, using the full OID (as shown below) or using a position number, such as $1 and $2. The advantage to using the full OID is that the action can be re-run on an “already received trap”. NNMi does not store the Varbind position, but if you use the OID specification, it properly re-runs the action as demonstrated in this example.

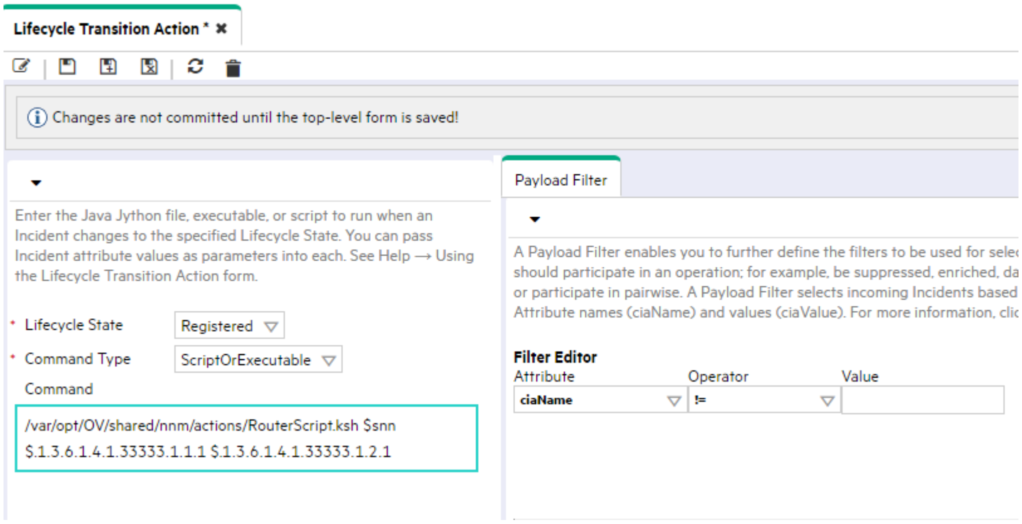
To configure a Lifecycle Transition Action:

1. In the **Lifecycle State** drop-down list, select **Registered**.
2. In the **Command Type** drop-down list, select **ScriptOrExecutable**.
3. In the **Command** attribute, enter the following command:

```
/var/opt/OV/shared/nnm/actions/RouterScript.ksh $snn $.1.3.6.1.4.1.33333.1.1.1 $.1.3.6.1.4.1.33333.1.2.1
```

Tip: Include the full path to the action script.

1. Click **Save and Close** to save your changes.



Lifecycle Transition Action *

Changes are not committed until the top-level form is saved!

Enter the Java Jython file, executable, or script to run when an Incident changes to the specified Lifecycle State. You can pass Incident attribute values as parameters into each. See Help → Using the Lifecycle Transition Action form.

* Lifecycle State: Registered
* Command Type: ScriptOrExecutable

Command:

```
/var/opt/OV/shared/nnm/actions/RouterScript.ksh $snn
$.1.3.6.1.4.1.33333.1.1.1 $.1.3.6.1.4.1.33333.1.2.1
```

Payload Filter

A Payload Filter enables you to further define the filters to be used for selec
should participate in an operation; for example, be suppressed, enriched, da
or participate in pairwise. A Payload Filter selects incoming Incidents based
Attribute names (ciaName) and values (ciaValue). For more information, clic

Filter Editor

Attribute	Operator	Value
ciaName	!=	

Next configure the action for the Important Servers Node Group.

1. Navigate to the **Configuration** Workspace.

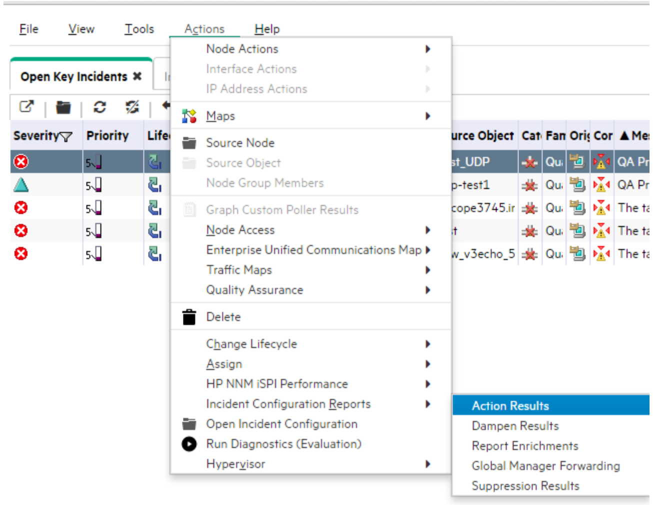
2. Open **Incidents** and select **SNMP Trap Configurations**.
3. Locate and select the TestApp trap, and then click the 📁 Open button.
4. Navigate to the **Node Settings** tab.
5. In the **Node Group** list, select the **Important Servers** Node Group and click the 📁 Open button.
6. In the **Ordering** attribute, enter **20**.
7. Click to check **Enabled**.
8. Navigate to the **Actions** tab.
9. Click the ✱ New icon.
10. Click to check **Enabled**.
11. In the **Lifecycle State** drop-down list, select **Registered**.
12. In the **Command Type** drop-down list, select **ScriptOrExecutable**.
13. In the **Command** attribute, enter the following command:

    ```
    /var/opt/OV/shared/nnm/actions/ServerScript.ksh $snn $1 $2
    ```

14. Click **Save and Close**.
15. Click **Save and Close** to save your changes.
16. Click **Save and Close** again to save your changes.

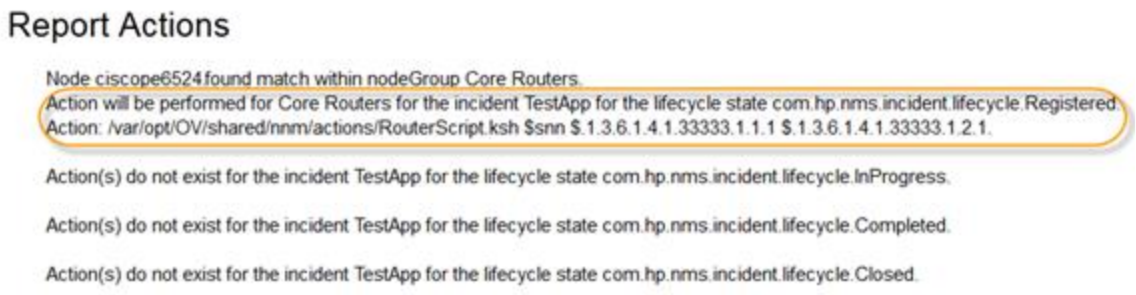
To confirm that action is configured properly

1. From an incident view, select an incident of interest and then click the 📁 Open button.
2. Select **Actions->Incident Configuration Reports-> Action Results**.



The Action Results report displays whether a Node Group match occurred for that particular trap and if the action would have been run.

Note
Run the Action Results report for a node in the Core Routers group and for a node in the Important Servers group.



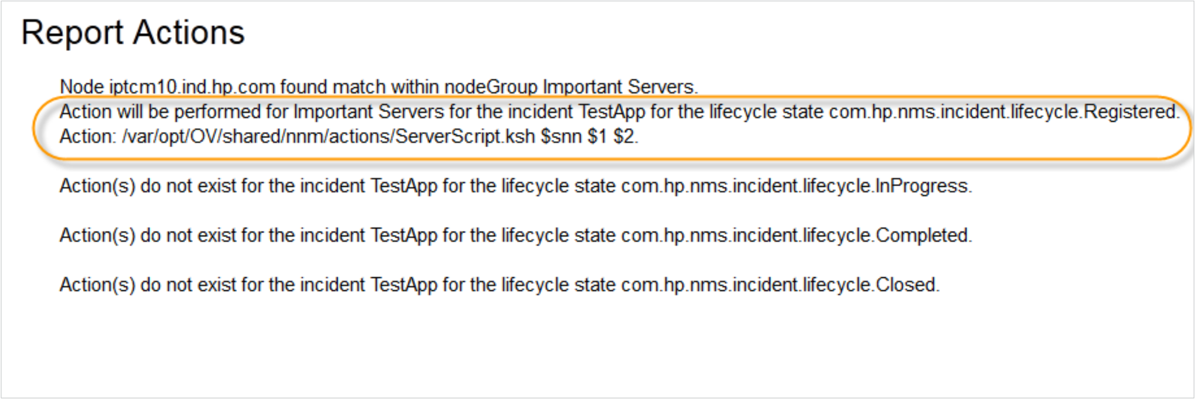
Report Actions

Node ciscope6524 found match within nodeGroup Core Routers.
Action will be performed for Core Routers for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Registered.
Action: /var/opt/OV/shared/nnm/actions/RouterScript.ksh $snn $.1.3.6.1.4.1.33333.1.1.1 $.1.3.6.1.4.1.33333.1.2.1.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.InProgress.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Completed.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Closed.



Report Actions

Node iptcm10.ind.hp.com found match within nodeGroup Important Servers.
Action will be performed for Important Servers for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Registered.
Action: /var/opt/OV/shared/nnm/actions/ServerScript.ksh $snn $1 $2.

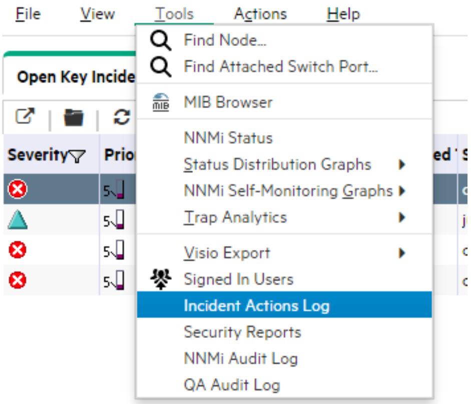
Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.InProgress.

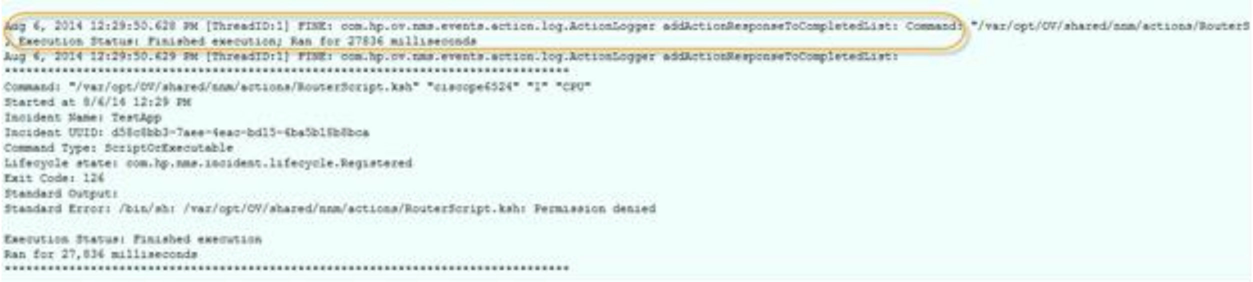
Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Completed.

Action(s) do not exist for the incident TestApp for the lifecycle state com.hp.nms.incident.lifecycle.Closed.

Next, send one of the traps.

After the trap is sent, check the Incident Actions log for a message indicating the action was run.





```
Aug 6, 2014 12:29:50.628 PM [ThreadID:1] FINE: com.hp.ov.nms.events.action.log.ActionLogger addActionResponseToCompletedList: Command: "/var/opt/OV/shared/nnm/actions/RouterS
) Execution Status: Finished execution; Ran for 27836 milliseconds
Aug 6, 2014 12:29:50.629 PM [ThreadID:1] FINE: com.hp.ov.nms.events.action.log.ActionLogger addActionResponseToCompletedList:
******************************************************************************
Command: "/var/opt/OV/shared/nnm/actions/RouterScript.ksh" "ciscope6524" "I" "CPU"
Started at 8/6/16 12:29 PM
Incident Name: TestApp
Incident UUID: d58c8bb3-7aee-4eac-bd15-6ba5b15b8bca
Command Type: ScriptOrExecutable
Lifecycle state: com.hp.nms.incident.lifecycle.Registered
Exit Code: 126
Standard Output:
Standard Error: /bin/sh: /var/opt/OV/shared/nnm/actions/RouterScript.ksh: Permission denied

Execution Status: Finished execution
Ran for 27,836 milliseconds
******************************************************************************
```

You can also check the results of the action as shown in the following example:

```
# cat /tmp/serverscript.txt
```

```
cheese 2 CPU
```

To practice running the action from an already received incident:

1. From an incident view, select an incident of interest and then click the Open   button.
2. Change the Lifecycle State attribute to a different state.
3. Click Save and Close.
4. Change the Lifecycle State attribute value back to the Registered State.
5. Click Save and Close.

Note
NNMi processes the varbinds values in the proper order when the trap first arrives, but it does not do so in subsequent runs when the Lifecycle State is changed and the varbinds are identified using position number. Therefore, use the full OIDs for the varbinds when forcing a Lifecycle State change.

We appreciate your feedback!

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If no email client is available, copy the information below to a new message in a web mail client, and then send this message to **network-management-doc-feedback@hpe.com**.

Product name and version: NNMi 10.20

Document title: Step-by-Step Guide to Incident Management

Feedback:

Hewlett Packard
Enterprise